UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 73534

CR NO. 111

OVER THE

SAUK RIVER

DISTRICT 3 – STEARNS COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 73534, Piers 1 and 2, were found to be generally in good condition below water with no defects of structural significance observed. The steel pipe piles exhibited coating failure and light surface corrosion from 1 foot above the waterline to the channel bottom. The channel bottom appeared stable no significant scour observed.

INSPECTION FINDINGS:

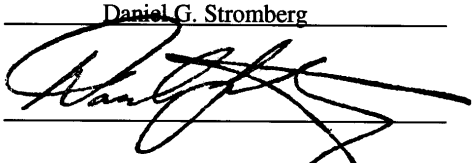
(A) The steel piles exhibited coating failure and fairly uniform light surface corrosion from 1 foot above the waterline to the channel bottom with random rust nodules up to 1/4 inch in diameter over 5 percent of the surface area.

RECOMMENDATIONS:

(A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

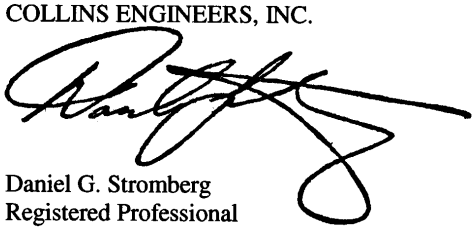
Daniel G. Stromberg



Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 73534

Feature Crossed: The Sauk River

Feature Carried: CR No. 111

Location: District 3 – Stearns County

Bridge Description: The bridge superstructure consists of three spans of multiple steel beams with a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and two concrete encased steel piles piers. The piers are numbered 1 and 2 starting from the south end of the bridge.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookings

Date: September 28, 2002

Weather Conditions: Rain, "45E F

Underwater Visibility: "2 feet

Waterway Velocity: "0.5 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: The piers consist of a single line of nine cast-in-place concrete steel pipe piles supporting a concrete pier cap.

Maximum Water Depth at Substructure Inspected: Approximately 8 feet.

4. WATERLINE DATUM

Water Level Reference: Top of pier cap at east end of Pier 2.

Water Surface: The waterline was approximately 17.5 feet below reference. Assumed Waterline Elevation = 82.5.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

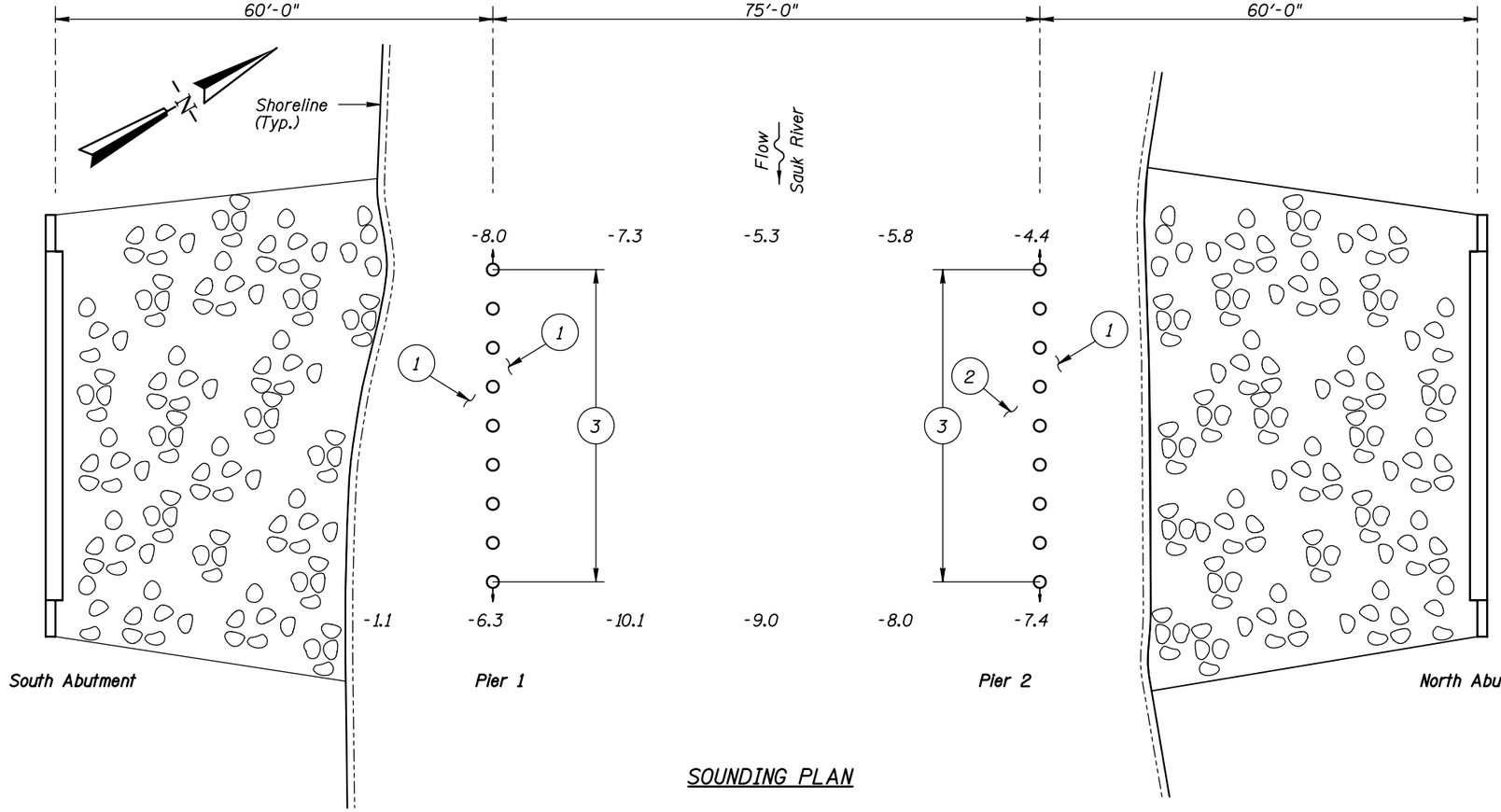
Item 61: Channel and Channel Protection: Code 8

Item 92B: Underwater Inspection: Code B/9/02

Item 113: Scour Critical Bridges: Code I/02

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____Yes __X__ No



SOUNDING PLAN

GENERAL NOTES:

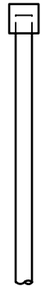
1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection on September 28, 2002 the waterline was located approximately 17.5 feet below the top of the pile cap at the downstream end of Pier 2. Since insufficient bridge elevation information was available a reference elevation of 100.0 was assumed. Based on the assumed reference the waterline elevation was 82.5.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES:

(1) The channel bottom consisted of sand and silt with 1 to 2 foot diameter riprap and no probe rod penetration.

(2) The channel bottom consisted of sand and gravel with up to 4 inches of probe rod penetration.

(3) The steel piles exhibited coating failure and fairly uniform surface corrosion from 1 foot above the waterline to the channel bottom with random rust nodules up to 1/4 inch in diameter over 5 percent of the surface area.



TYPICAL END VIEW OF PIER S

Legend

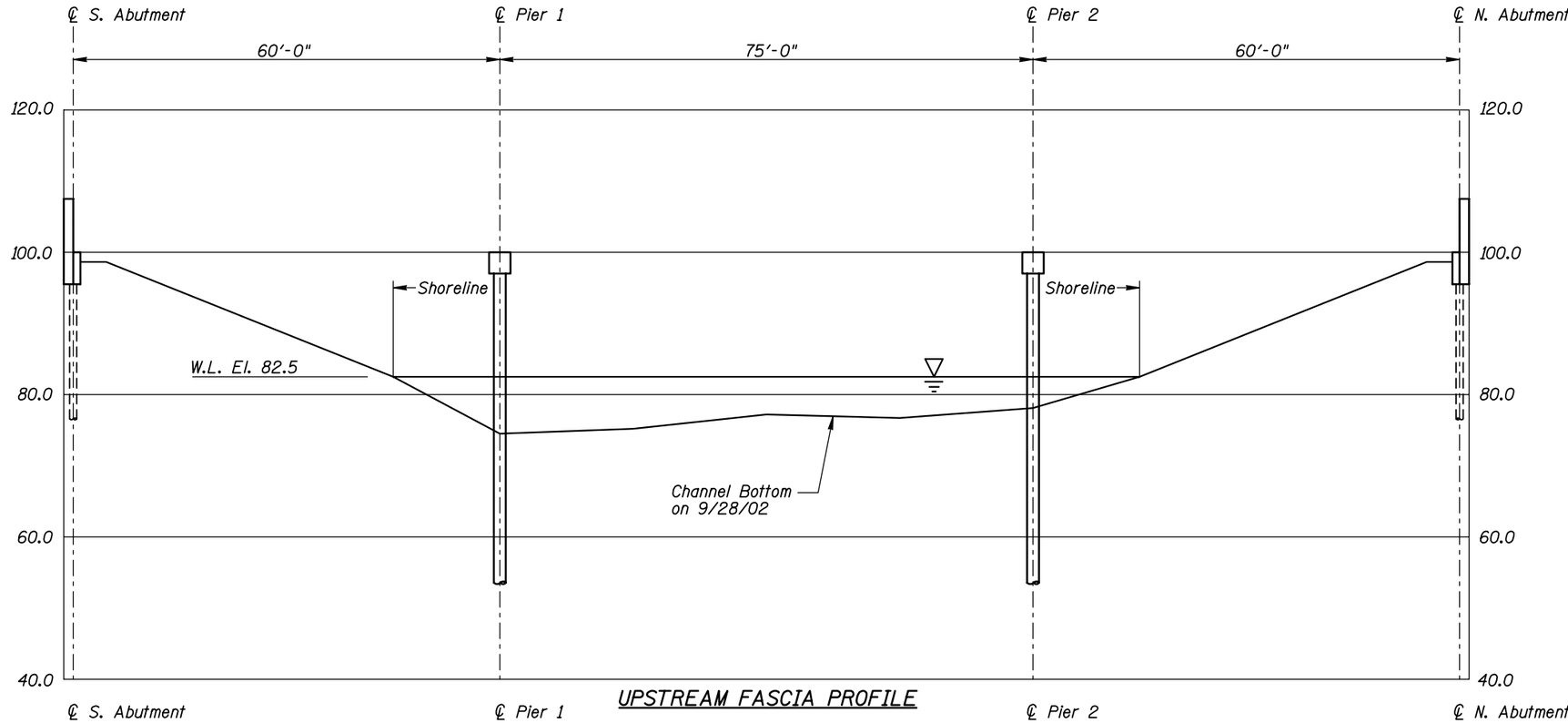
-8.0	Sounding Depth from Waterline (9/28/02)
O	20" Diameter Steel Pipe, Cast-in-place Concrete Pile
O	Battered 20" Diameter Steel Pipe, Cast-in-place Concrete Piles
	Random Riprap

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

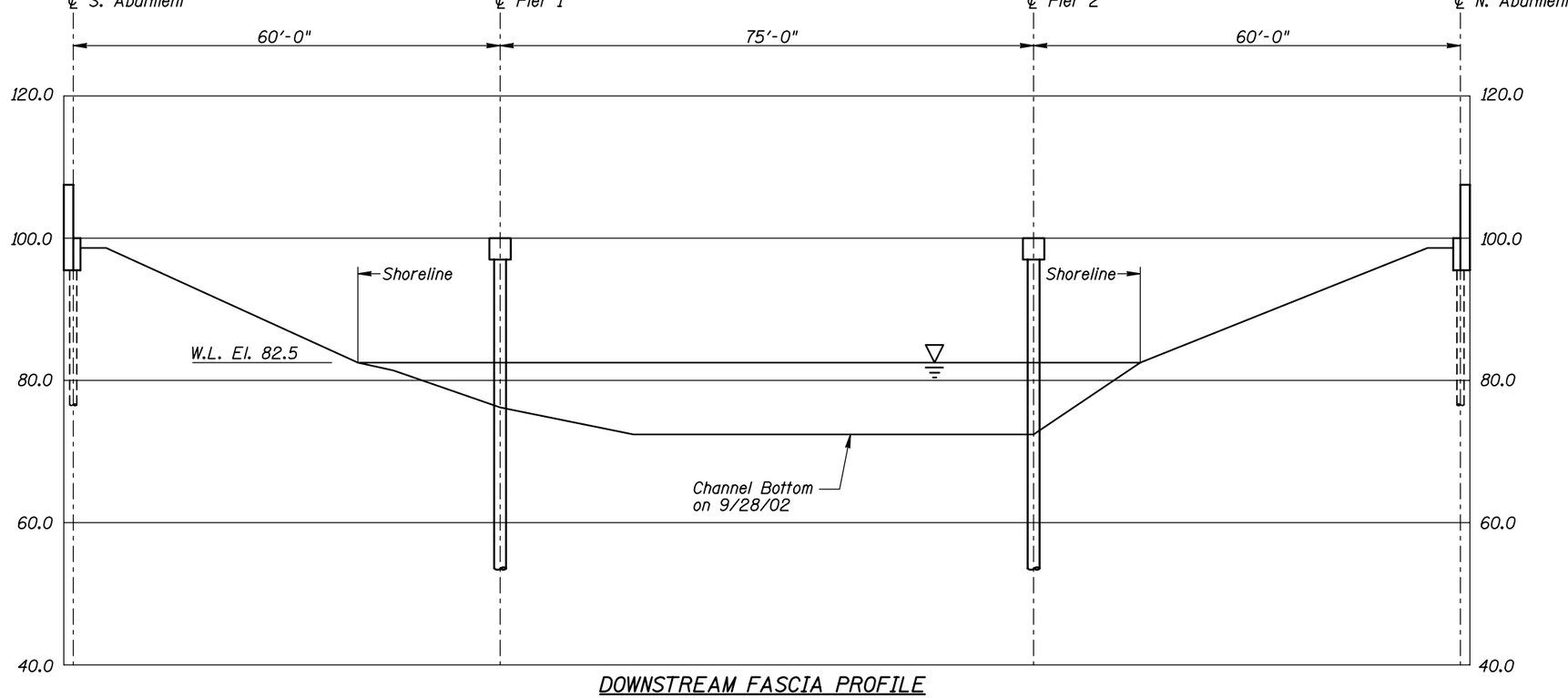
STRUCTURE NO. 73534
OVER THE SAUK RIVER
DISTRICT 3, STEARNS COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 351273534		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
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UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=20'
Code: 351273534		Figure No.: 2

Photograph 1. Overall View of the Structure, Looking East.

Photograph 2. View of Pier 1, Looking North.

Photograph 3. View of Pier 2, Looking Northwest.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: September 28, 2002
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.
BRIDGE NO: 73534 WEATHER: Rain, "45E F
WATERWAY CROSSED: The Sauk River
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER
PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins
EQUIPMENT: Scuba, U/W Light, Scraper, Sounding Pole, Lead Line, Camera
TIME IN WATER: 11:30 p.m.
TIME OUT OF WATER: 12:00 p.m.
WATERWAY DATA: VELOCITY "0.5 f.p.s.
VISIBILITY "2 feet
DEPTH 8 feet maximum at Pier 1
ELEMENTS INSPECTED: Piers 1 and 2
REMARKS: Overall, the substructure units were in good condition with no significant deterioration. The steel pipe piles exhibited coating failure with minor nodular corrosion from 1 foot above the waterline to the channel bottom. At the time of the inspection, the channel bottom appeared stable with scattered riprap at both piers and no significant scour present.

FURTHER ACTION NEEDED: _____ YES ___X___ NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 73534
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Sauk River

INSPECTION DATE September 28, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	8.0’	7	N	N	9	N	7	8	N	8	N	8	N	7	N	N	N	N
	Pier 2	7.4’	7	N	N	9	N	7	8	N	8	N	8	N	7	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the substructure units were in good condition with no significant deterioration. The steel pipe piles exhibited coating failure with minor nodular corrosion from 1 foot above the waterline to the channel bottom. At the time of the inspection, the channel bottom appeared stable with scattered riprap at both piers and no significant scour present.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.